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(54) Title: PROCESS FOR INCREASING THE YIELD OF LIPID AND OMEGA-3 FATTY ACID IN SEAWEED CULTURE

(57) Abstract: The present invention relates to a new method for producing polyunsaturated fatty acids from algae. The method comprises the step of applying at least growth-limiting factor to an algae culture, causing growth arrest of said algae culture and production and stocking by algae in culture of polyunsaturated fatty acids.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12P7/64 C12N1/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12P

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, EMBASE, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 91/14427 A (MARTEK CORP) 3 October 1991 (1991-10-03) abstract page 6, paragraph 1 page 9, line 17 - page 11, line 3 example	1-8
A	LOMBARDI A T ET AL: "INFLUENCE OF PHOSPHORUS AND SILICON ON LIPID CLASS PRODUCTION BY THE MARINE DIATOM CHAETOCEROS-GRACILIS GROWN IN THE TURBIDOSTAT CAGE CULTURES" MARINE ECOLOGY PROGRESS SERIES, vol. 77, no. 1, 1991, pages 39-47, XP0008026897 ISSN: 0171-8630 the whole document	1-8

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- *&* document member of the same patent family

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	<p>LOMBARDI A T ET AL: "Particulate lipid class composition of three marine phytoplankters Chaetoceros gracilis, Isochrysis galbana (Tahiti) and Dunaliella tertiolecta grown in batch culture" HYDROBIOLOGIA, vol. 306, no. 1, 1995, pages 1-6, XP0008026898 & ISSN: 0018-8158 the whole document</p>	1-8

INTERNATIONAL SEARCH REPORT

information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9114427	A	03-10-1991	US 5244921 A	14-09-1993
			AT 195420 T	15-09-2000
			CA 2078664 A1	22-09-1991
			DE 69132370 D1	21-09-2000
			DE 69132370 T2	29-03-2001
			EP 0521104 A1	07-01-1993
			JP 5505726 T	26-08-1993
			WO 9114427 A1	03-10-1991
			US 5567732 A	22-10-1996